NEVADA DIVISION OF ENVIRONMENTAL PROTECTION
FACT SHEET

(pursuant to NAC 445A.236)

Permitteee Name: City of Caliente
P.O. Box 158
Caliente, NV 89008
Lincoln County

Permit Number: NEV93010

Location: Approximately one mile southwest of Caliente at the intersection of S.R. 317 (Rainbow Canyon Road) and U.S. 93
Latitude: 37° 35' 34"N, Longitude: 114° 32' 17"W
Latitude/Longitude at Facility Headworks
Township 4S, Range 67E, Sections 7&18

General: The City of Caliente provides sewer service to a community of approximately 1,200 residents. The wastewater influent is generated from domestic and commercial sources with no reported industrial connections. The entrance to the treatment ponds and effluent reuse area is located one mile southwest of Caliente at the intersection of S.R. 317 (Rainbow Canyon Rd.) and U.S. 93. The wastewater treatment system was constructed in 1994. The current discharge permit for this facility will expire at midnight, September 17, 2007. The Permitteee is requesting a modification to the permit, allowing for the use of an addition 25-acre parcel for re-use irrigation.
Biological wastewater treatment occurs in four HDPE-lined treatment cells. Currently, the four cells are operated in series with cell #1 being the primary cell and cells #2-4 being secondary (polishing) cells. Ten 10-Hp aerators are available with four aerators installed in each of cells #1-2 and one aerator installed in each of cells #3-4. The dimensions of each square-shaped cell are 0.46 acres (surface area) and 11.0 ft. (operating depth).

Secondary-treated effluent from cell #4 is stored in two effluent storage lagoons, which are HDPE-lined. The dimensions of each storage lagoon are 10.0 acres and 11.0 ft. at maximum storage capacity. At the system design capacity of 0.27 MGD, the storage lagoons have been sized to provide complete detention for winter effluent storage until the start of the irrigation season, which typically lasts from April to October. Presently, effluent from either storage lagoon is applied via flood irrigation on a 55-acre parcel of pasture, located due north of the lagoons. The pasture is planted with forage crops, such as tall wheat grass, maintained by a local farmer through cattle grazing. Effluent tailwater is recovered and pumped back to storage lagoon #1. The Permittee proposes to add an additional 25-acre irrigation parcel that is located approximately 0.2 mile north of the present field. Prior to the use of the new field, the Permittee shall submit and obtain approval of an Effluent Management Plan (EMP) prepared in accordance with *WTS-1B: General Criteria for Preparing an Effluent Management Plan.* The EMP must be wet stamped by a professional engineer registered in the State of Nevada. Additionally a monitoring well shall be installed upgradient of the new irrigation field. The new monitoring well shall be installed in accordance with *WTS-4: Guidance Document for Design of Groundwater Monitoring Wells.* The existing upgradient monitoring well (MW-1) shall be properly abandoned in conformance with the

requirements of the Division of Water Resources after the new monitoring well is installed and functioning.

Flow: The permit limits the 30-day average and daily maximum flows to 0.27 and 0.34 MGD, respectively.

Receiving Water Characteristics: Treated effluent is applied for field irrigation practices. The receiving water for effluent percolating past the evapotranspiration root zone is groundwater of the State. Currently the facility monitors groundwater via three monitoring wells to assess impacts to the groundwater from effluent irrigation. Monitoring wells #2&3 (MW-2 & MW-3) are sited downgradient of the pasture near the treatment ponds. MW-1 provides the upgradient sample and is located due north of the pasture near the front entrance gate on Rainbow Canyon Rd. In 2006-07, depth to groundwater in these three wells ranged from only 0.2 to 8.5 feet below ground surface. Groundwater characteristics as measured from the three (3) monitoring wells are as follows:

PARAMETER[1]	MW-1	MW-2	MW-3
DEPTH TO GROUNDWATER (FEET BGS[2])	7.7	1.4	3.3
TOTAL DISSOLVED SOLIDS (MG/L)	495	3290	2845
CHLORIDE (MG/L)	52	508	517
NITRATE AS N (MG/L)	0.03	0.04	0.40
TOTAL NITROGEN AS N (MG/L)	0.54	1.15	2.05

[1]: Average measurements/concentrations (quarterly), 2nd quarter 2006 through 1st quarter 2007
[2]: Below ground surface

Rationale for Permit Requirements: The Division's rationale for the proposed monitoring conditions is as follows:

- *Flow*: Influent flow is tracked to ensure that the design capacity of the treatment facility is not exceeded. The facility must also track the net irrigation flow (total irrigation flow – tailwater return flow) to provide the annual nitrogen balance.

- *CBOD*: The Division requires the monitoring of influent and effluent Carbonaceous Biochemical Oxygen Demand (CBOD or Inhibited BOD), as an indication of treatment performance in the ponds. The Division's secondary-treatment CBOD standards for ponds is 45 mg/L for daily maximum values. This parameter is to be monitored on a quarterly basis.

- *TSS*: The Division's secondary-treatment standard for Total Suspended Solids (TSS) in pond system effluent is 90 mg/L. This parameter is to be monitored in the influent and effluent on a quarterly basis.

- *pH*: The Division requires the pond effluent to meet a pH standard of between 6.0 and 9.0 standard units. pH shall be sampled in the effluent on a quarterly basis.

- *Total Nitrogen-N Monitoring*: An annual nitrogen mass balance is required to ensure that excess nitrogen is not applied beyond plant uptake requirements. This parameter is to be monitored in the effluent on a quarterly basis.

- *Groundwater Monitoring*: The facility is required to conduct quarterly groundwater sampling for depth to groundwater, groundwater elevation, total dissolved solids (TDS), chlorides, nitrate as nitrogen, and total nitrogen parameters to ensure that State groundwater resources are not impacted from effluent irrigation practices. Monitoring wells #1-3, plus the new upgradient monitoring well, shall provide the groundwater sample locations.

Proposed Effluent Limitations and Special Conditions:

Plant Discharge Limitations

PARAMETER	DISCHARGE LIMITATIONS		MONITORING REQUIREMENTS	
	30-Day Average	Daily Maximum	Measurement Frequency	Sample Type
Flow, MGD (Influent)	0.27	0.34	Continuous	Flow Meter
CBOD, mg/L (Influent)	Monitor & Report		Quarterly	Discrete
CBOD, mg/L (Effluent)	-----	45	Quarterly	Discrete
TSS, mg/L (Influent)	Monitor & Report		Quarterly	Discrete
TSS, mg/L (Effluent)	90		Quarterly	Discrete
pH, Std. Units (Effluent)	Between 6.0 & 9.0		Quarterly	Discrete
Total Nitrogen as N, mg/L (Irrigation Flow)	Monitor & Report		Quarterly	Discrete

Effluent Reuse Limitations

PARAMETER	DISCHARGE LIMITATIONS	MONITORING REQUIREMENTS

		Measurement Frequency	Sample Type
Irrigation Rate, MGD	Monitor & Report[1]	Continuous	Flow Meter
Annual Application Volume, Acre-Feet (AF)[2]	Acre-Feet (AF x 0.326 = Million Gallons) (Volume determined from Consumptive Use Balance)	Cumulative Annual Total Irrigation Flows	Flow Meter
Annual (Actual) Nitrogen Loading (lbs/year)	Pounds (lbs) per Year (Mass determined from Nitrogen Budget)	Calculated Annually & reported in 4th Quarter DMR[3]	Calculated from records
Allowable Nitrogen Loading (lbs/year)	Pounds (lbs) per Year (Calculated in EMP)	Reported in 4th Quarter DMR	Calculated in EMP

1. Monthly application rates in the EMP should be used as a guide.
2. Annual Application Volume is based upon 110% of the application volume determined in the EMP.

Groundwater Monitoring (MW-1, MW-2 & MW-3)

PARAMETER	DISCHARGE LIMITATIONS	MONITORING REQUIREMENTS	
		Measurement Frequency	Sample Type
TDS, mg/L	Monitor & Report	Quarterly	Discrete
Chlorides, mg/L	Monitor & Report	Quarterly	Discrete
Nitrate as N, mg/L	Monitor & Report	Quarterly	Discrete
Total Nitrogen as N, mg/L	10.0 mg/L	Quarterly	Discrete
Depth to Groundwater, ft	Monitor & Report	Quarterly	Field Measurement
Groundwater Elevation, ft	Monitor & Report	Quarterly	Field Measurement

Schedule of Compliance: The Permitteee shall submit the following items to the Division for review and approval. All compliance deliverables shall be addressed to the attention of the Compliance Coordinator, Bureau of Water Pollution Control:

- Within thirty (30) days of permit issuance (by **Month XX, 2007**) the Permittee shall submit a current EMP for the 55-acre irrigation parcel.

- The Permittee shall submit and have approved an EMP prior to initiating irrigation of the proposed new 25-acre parcel. The EMP shall be prepared in accordance with *WTS-1B: General Criteria for Preparing an Effluent Management Plan*. The EMP shall be wet stamped by a professional engineer registered in the State of Nevada. The EMP shall

include sections on the installation of a new upgradient monitoring well and the abandonment of MW-1.

- **At least thirty (30) days prior to the use of the 25-acre irrigation field,** as authorized by this permit, the Permittee shall notify both the Compliance Coordinator and the Technical Services Branch (TSB) of the Bureau of Water Pollution Control of the Permitee's intent to activate the 25-acre irrigation field.

- **Within fourteen (14) days** of the activation of the 25-acre irrigation field, the Permittee shall notify the Compliance Coordinator of such activation.

- Within 120 days of the approval of the EMP by the Division, the Permitte shall construct the new monitoring well and abandon MW-1.

- Within thirty (30) days of the permit issuance date (**Month XX, 2007)**, the Permittee shall submit a revised Operation and Maintenance (O&M) Manual for the treatment facility and the re-use of the treated effluent.

- Within 180 days of permit issuance date **(Month XX, 2008)**, the Permittee shall address the inflow and infiltration of stormwater/groundwater into the sanitary sewer collection system and submit findings and mitigation procedures for the exclusion of these waters into the collection system to the Technical Services Branch of the Bureau of Water Pollution Control for review.

Procedures for Public Comment: The Notice of the Division's intent to issue (renew with modification) a permit authorizing the facility to irrigate pasture crops with secondary-treated effluent, subject to the conditions contained within the permit is being sent to the **Lincoln County Record** and **Las Vegas Review-Journal** for publication. The notice is being mailed to interested persons on our mailing list. Anyone wishing to comment on the proposed permit can do so in writing for a period of thirty (30) days following the date of publication of the public notice in the newspaper. The comment period can be extended at the discretion of the Administrator. The deadline date and time by which all comments are to be submitted (via postmarked mail or time-stamped faxes, e-mails, or hand-delivered items) to the Division is **August 20, 2007** by **5:00 P.M.**

A public hearing on the proposed determination can be requested by the applicant, any affected State, any affected interstate agency, the Regional Administrator or any interested agency, person or group of persons. The request must be filed within the comment period and must indicate the interest of the person filing the request and the reasons why a hearing is warranted.

Any public hearing determined by the Administrator to be held must be conducted in the geographical area of the proposed discharge or any other area the Administrator determines to be appropriate. All public hearings must be conducted in accordance with NAC 445A.238.

The final determination of the Administrator may be appealed to the State Environmental Commission pursuant to NRS 445A.605.

Proposed Determination: The Division has made the tentative determination to issue (renew) the proposed discharge permit for a period of five (5) years.

Prepared by: James T. Hogan
Staff Engineer II
Bureau of Water Pollution Control

Date: May 17, 2007

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